AMENDMENT

In the Specification

The paragraph on page 15, line 22 to page 16, line 20, has been amended as shown below:

"The approach that we will consider to the above inverse problem is based on the fact that G may be related to the optical properties of the medium. This dependence, which is known to be nonlinear, significantly complicates the inverse problem. Indeed, the Dyson equation for G can be written in operator form as

$$G = G_0 - G_0VG\,, \qquad (2)$$

where G_0 is the Green's function for a homogeneous medium and V is the operator which describes the deviations of the optical properties of the medium from their background values. From the relation $G = (1 + G_0V)^{-1}G_0$, it can be seen that G is a nonlinear ~~functional~~ function of V. It is possible to linearize the inverse problem under the assumption that the V is small, as is the case in many physical applications. The simplest approach is to use the first Born approximation which is given by

$$G = G_0 - G_0VG_0\,. \qquad (3)$$

In this case the main equation of DT can be formulated as

$$\Phi = G_0VG_0\,, \quad (4)$$

where $\Phi = G_0 - G$ is the experimentally measurable data function. Note that other methods of linearization can also be used, leading to an equation of the form (4) with a modified expression for Φ (see section 2 below)."